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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,625	08/05/2003	Kyeong Jin Kim	041501-5455-01	6368
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MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			EXAMINER DI GRAZIO, JEANNE A	
			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/633,625

Applicant(s)

KIM, KYEONG JIN

Examiner

Jeanne A. Di Grazio

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 11-18, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-18, 22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Status of Claims***

Claims 11-18 and 22-23 are pending. Claim 11 has been amended per Applicant's Amendment of July 18, 2005. Claims 1-10 and 19-21 have been cancelled per transmittal received August 5, 2003. Claim 23 is newly added per Amendment of July 18, 2005.

### ***Priority***

Priority to Korean Patent Application P2000-0066138 (Nov. 8, 2000) is claimed.

This is a Continuation Patent Application of prior application 09/986,189 now United States Patent 6,642,992 B2.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,122,024 (to Molsen et al.) in view of United States Patent 6,313,894 B1 (to Sekine et al.).

As to claim 11 (amended), Molsen teaches and discloses switchable liquid crystal devices. Molsen shows in Figure 1, a first substrate (transparent substrate 1), a second substrate (transparent substrate 4) opposing the first substrate (transparent substrate 1), a liquid crystal layer (nematic liquid crystals 8) between the first (1) and second (4) substrates, the liquid crystal having photopolymerisable material with one or more reactive groups mixed in with a non-chiral nematic liquid crystal and whereby ultraviolet radiation forms a helical polymer network (See Column 4, Lines 32-67)(Applicant's "a liquid crystal layer between the first and second substrates, the liquid crystal layer having a photo-reactant material and a liquid crystal, wherein the photo-reactant material and the liquid crystal form a polymer network.").

Molsen does not appear to explicitly specify at least one sealant along a periphery of one of the first and second substrates.

Sekine teaches and discloses a liquid crystal display with regions of polymer networks and with reference to Figures 5A and 5B, a main sealing agent (13) along a periphery of one of first (11) and second (12) substrates. The main sealing agent (13) is used in the display to secure

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a liquid crystal material between substrates and to contain the liquid crystal material in a display region. The main sealing agent (13) serves to maintain the opposite glass and active matrix substrates parallel to each other and to contribute to a constant distance between the substrates (Column 7, Lines 43-48).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystal displays at the time the invention was made to modify Molsen in view of Sekine to incorporate at least one sealant along a periphery of one of first and second substrates into a liquid crystal display device (1) to contain the liquid crystal layer and photo-reactive material in a display region, (2) to contribute to the substrates remaining parallel with each other, and (3) to maintain a constant distance between the substrates.

As to claims 12 and 13, the main sealing agent may include thermosetting resins, UV-cured resins, and dual active resins which can harden in the presence of UV rays as well as heating (Sekine at Column 7, Lines 43-48).

As to claim 14, it may be presumed that the photo-reactant material includes one of a photo-reactant polymer and photo-reactant oligomer.

As to claim 15, although not illustrated, Sekine presumably contains at least an alignment layer for alignment of the liquid crystal layer (17). Molsen also includes alignment layers (Figure 1, alignment layers 3 and 6).

As to claim 16, Sekine has, with reference to Figure 7, black stripes (222) (Applicant's light-shielding layer), a color filter (fluorescence layer, 221), and common electrode (223) all on opposing substrate (220) as conventional elements of a color active matrix display.

As to claim 17, Sekine, with respect to Figure 5B, illustrates at least one spacer (14) to maintain substrate gap.

As to claim 18, the spacer of Figure 5B (spacer 14) appears columnar in shape.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,122,024 (to Molsen et al.) in view of United States Patent 6,313,894 B1 (to Sekine et al.) and further in view of United States Patent 5,872,609 (to Hiji et al.).

As to claim 22, Molsen does not appear to explicitly specify that the photo-reactant material remains uncured.

Hiji teaches and discloses a light control element and method wherein a liquid crystal and photo-setting uncured material are irradiated with coherent light beams to result in an anisotropic gel in which orientation is periodically fixed (Column 6, Lines 14-40).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Molsen in view of Hiji for an uncured photo-reactant material so that an anisotropic gel could be formed with periodically fixed orientation.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,122,024 (to Molsen et al.) in view of United States Patent 6,313,894 B1 (to Sekine et al.) and further in view of United States Patent 5,517,344 (to Hu et al.).

As to claim 23 (new), Molsen does not appear to explicitly specify a first sealant along a periphery of one of the first and second substrates and a second sealant along the periphery of the first sealant, thereby forming a double sealant.

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Hu teaches and discloses a system for the protection of drive circuits formed on the substrate of a liquid crystal display in which sealing bands (12 and 19 of Figure 6, for example) enclose a driving circuit (11) to protect the driving circuit.

It would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Molsen in view of Hu to protect active drive circuits and to reduce cracking of the substrate (entire patent).

### *Response to Arguments*

Applicant's arguments filed July 18, 2005 have been fully considered but they are not persuasive.

The Examiner appreciates Applicant's Remarks in Paper of July 18, 2005. However, the Examiner respectfully disagrees.

Applicant argues, with reference to claim 11, that the polymer network of Molsen is made up of only the precursor material and does not include the liquid crystal material (Remarks at page 6).

However, the Examiner notes that Molsen teaches that a material comprising one or more chiral compounds with one or more reactive groups is mixed with a non-chiral nematic liquid crystal material, a photoinhibitor and photoinitiator such that a polymer network is formed (Column 4, Lines 50-67).

Also, it is respectfully noted that, with regard to claim 11, it is claimed that the photo-reactant material and liquid crystal material form the polymer network. As such, the claim means

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that these materials result in the formation of a polymer network. It is not claimed that the polymer network consists of the photo-reactant material and the liquid crystal material wherein both of these materials, in combination, become the polymer network.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jeanne Andrea Di Grazio

Patent Examiner

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JDG

  
ANDREW SCHECHTER  
PRIMARY EXAMINER